



Aquatic ecosystems and biodiversity (146061)

Nositelj predmeta

[prof. dr. sc. Marina Piria](#)

Opis predmeta

Geologic and climatic changes. Changes of freshwater and marine habitats. Basic characteristics of different aquatic ecosystems. Habitats in marine and fresh waters and their influence on the biodiversity. The significance of biodiversity and its preservation. Reasons for endangering of biodiversity and ways of its protection. Speciation. Molecular biology evolution of aquatic organisms. Overview of all plant and animal phyla, with special emphasis on important marine and fresh water taxons. Fish biology and ecology. Sampling of aquatic organisms and their in situ study. Laboratory analysis of aquatic organisms. Use of the key for aquatic species determination. Section of fish. Student seminar.

ECTS: 3.00

Sati nastave: 30

Predavanja: 22

Laboratorijske vježbe: 4

Seminar: 2

Terenske vježbe: 2

Ocjenjivanje

Dovoljan (2): 60-69 %

Dobar (3): 70-79 %

Vrlo dobar (4): 80-89 %

Izvrstan (5): 90-100 %

Izvođač predavanja

- [prof. dr. sc. Ana Gavrilović](#)
- [prof. dr. sc. Marina Piria](#)
- [prof. dr. sc. Tea Tomljanović](#)
- [prof. dr. sc. Daniel Matulić](#)

Izvođač vježbi

- [dr. sc. Ivan Špelić](#)
- [dr. sc. Tena Radočaj](#)

Izvođač seminara

- [dr. sc. Ivan Špelić](#)

Vrsta predmeta

- Graduate studies / [Environment, agriculture and resource management](#) (Obvezni predmet, 3. semestar, 2. godina)

Opće kompetencije

Students acquire knowledge on the biological and ecological diversity of marine and inland waters, on the ways of their endangerment and on the conservation measures.

Oblici nastave

- Lectures
- Laboratory practice/exercises
 - Analyses of sampled material
- Field work
 - Sampling of aquatic organisms and water
- Seminars
 - Independent student group sampling, laboratory analysing, literature searching, writing and presenting specified case study

Ishodi učenja i način provjere

| Ishod učenja | Način provjere |
|--|----------------|
| Basic general knowledge in field | Oral exam |
| Capability of knowledge implementation in practice | Exercises |
| Capability of analysis and synthesis | Oral exam |
| Research competencies | Exercises |
| Learning capabilities | Oral exam |
| Working capability in interdisciplinary teams | Seminar |
| Interpersonal competencies | Seminar |
| Oral and written communication in English | Seminar |

Način rada

Obveze nastavnika

Regular maintenance of all forms of teaching. The time for consultations out of lectures.

Obveze studenta

Regular attending at classes and performing assigned tasks.

Polaganje ispita



| Elementi praćenja | Maksimalno bodova ili udio u ocjeni | Bodovna skala ocjena | Ocjena | Broj sati izravne nastave | Ukupni broj sati rada prosječnog studenta | ECTS bodovi |
|-------------------------------------|-------------------------------------|----------------------|--------|---------------------------|---|-------------|
| 1st exam oral | 16 % | | | | | 0.5 |
| 2nd exam oral | 16 % | | | | | 0.5 |
| 3rd exam oral | 16 % | | | | | 0.5 |
| 4th exam oral | 16 % | | | | | 0.5 |
| 5th exam oral | 16 % | | | | | 0.5 |
| Final exam Seminar written and oral | 20 % | | | | | 0.5 |
| Total | 100 % | | | | | 3 |

| Elementi praćenja | Opis | Rok | Nadoknada |
|-------------------|--|---|---|
| Oral exams | In parts, according to the given paragraphs | Deadlines determined at the beginning of the semester | Deadlines determined at the beginning of the semester |
| Final oral exam | Public presentations of seminars with answering at questions | Deadlines determined at the beginning of the semester | Deadlines determined at the beginning of the semester |

Tjedni plan nastave

1. Habitat changes. Aquatic ecosystems L - Geologic and climatic changes; Changes of freshwater and marine habitats. Basic characteristics of different aquatic ecosystems.
2. Aquatic ecosystems L - Basic characteristics of different aquatic ecosystems.
3. Aquatic ecosystems. Habitat - biodiversity relationship. L - Basic characteristics of different aquatic ecosystems. Habitats in marine and fresh waters and their influence on the biodiversity; Reasons for endangering of biodiversity and ways of its protection; Speciation. Energy and productivity.
4. Molecular biology evolution. Molecular biology investigations L - Molecular biology evolution of aquatic organisms. Molecular biology investigation of aquatic organisms.
5. Aquatic plants and lower organisms L - Overview of important taxons of plants and lower organisms.
6. Freshwater invertebrates L - Overview of freshwater invertebrate animal phyla, with special emphasis on important freshwater taxons.
7. Freshwater invertebrates. Marine invertebrates. L - Overview of freshwater invertebrate animal phyla, with special emphasis on important freshwater taxons. Overview of marine invertebrates, with special emphasis on important marine taxons.
8. Marine invertebrates L - Overview of marine invertebrates, with special emphasis on important marine taxons.
9. Aquatic vertebrates L - Overview of aquatic vertebrates, with special emphasis on important marine and freshwater taxons.
10. Fish biology and ecology L - Basics of fish biology and ecology
11. Bases searching and communication Pe-L - Searching for scientific literature by internet and scientific bases. Presentation of seminars by internet.
12. Seminar S - Equipment and methods for sampling of water organisms.
13. Field Work F - Sampling of plankton, benthos and fish.
14. Laboratory Practice I Lab - Plankton and benthos analyses.
15. Laboratory Practice II Lab - Fish analyses.

Obvezna literatura

1. Sumich J. L. (1992): An Introduction to the Biology of Marine Life. WCB, Wm. C. Brown Publishers, Dubuque
2. Needham J. G., Paul R. (1988): A Guide to the Study of Fresh-Water Biology. McGraw-Hill, Boston
3. Moyle P. B., Cech J. J. (2004): Fishes: an introduction to ichthyology. Prentice Hall, Upper Saddle River
4. Sparre, P., Venema S. C. (1992): Introduction to tropical fish stock assessment. Part 1-Manual. FAO, Fish Tech. Pap., 306/1, 110 pp

Preporučena literatura

1. Riedl R. (1963): Fauna und Flora der Adria. Verlag Paul Parey, Hamburg und Berlin
2. Kottelat, M, Freyhof J. (2007): Handbook of European Freshwater Fishes. Kottelat, Cornol, Switzerland and Freyhof, Berlin, Germany
3. Stiassny M. L. J., Parenti L. R., Johnson G. D. (eds), (1996): Interrilationships of Fishes. Academic Press, San Diego



Sličan predmet na srodnim sveučilištima

- Applied Hydrobiology, Mendel University in Brno, Czech Republic
- Biologija mora. Sveučilište u Dubrovniku
- Ecology and Biodiversity, Marine and Freshwater Biology, Monash University, Melbourne, Australia